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AMERICAN RARE EARTHS

American Rare Earths

"Pioneering the future of clean energy"

Investor Presentation

February 2024

(ASX: ARR | ADRs - OTCQX: AMRRY | Common Shares - OTCQB: ARRNF)

Disclaimers and Forward-Looking Statements

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Competent Person Statement

The information in this report that relates to Exploration Results or Resource Estimates is based on information compiled by Mr. Dwight Kinnes and personnel directly under his supervision. Mr. Kinnes is a Member of a Recognised Overseas Professional Organisation included in a list promulgated by the ASX (SME Registered Member of the Society of Mining, Metallurgy and Exploration Inc, #4063295). Mr. Kinnes is an employee of American Rare Earths. Mr. Kinnes has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which they are undertaking as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr. Kinnes consents to the inclusion in the report of the matters based on their information in the form and context in which it appears.

The information in this report that relates to Exploration Results or Resource Estimates is based on information reviewed by Mr. Jim Guilinger. Mr. Guilinger is a Member of a Recognised Overseas Professional Organisation included in a list promulgated by the ASX (SME Registered Member of the Society of Mining, Metallurgy and Exploration Inc). Mr. Guilinger is Principal of independent consultants World Industrial Minerals LLC. Mr. Guilinger has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which they are undertaking as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'.
Mr. Guilinger consents to the inclusion in the report of the matters based on their information in the form and context in which it appears.

This work was reviewed and approved for release by Mr Kelton Smith (Society of Mining Engineers #4227309RM) who is employed by Tetra Tech and has sufficient experience which is relevant to the metallurgical testing and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 JORC Code. Mr Smith consents to the inclusion in the report of the matters based upon the information in the form and context in which it appears.

ARR confirms it is not aware of any new information or data that materially affects the information included in the original market announcement, and, in the case of estimates of Mineral Resources, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcements continue to apply and have not materially changed. ARR confirms that the form and context in which the Competent Person's findings presented have not been materially modified from the original market announcement.

About American Rare Earths

We are committed to developing our projects featuring sustainable practices, inclusive principles and leading technologies to support the United States' national security and economic transformation goals.

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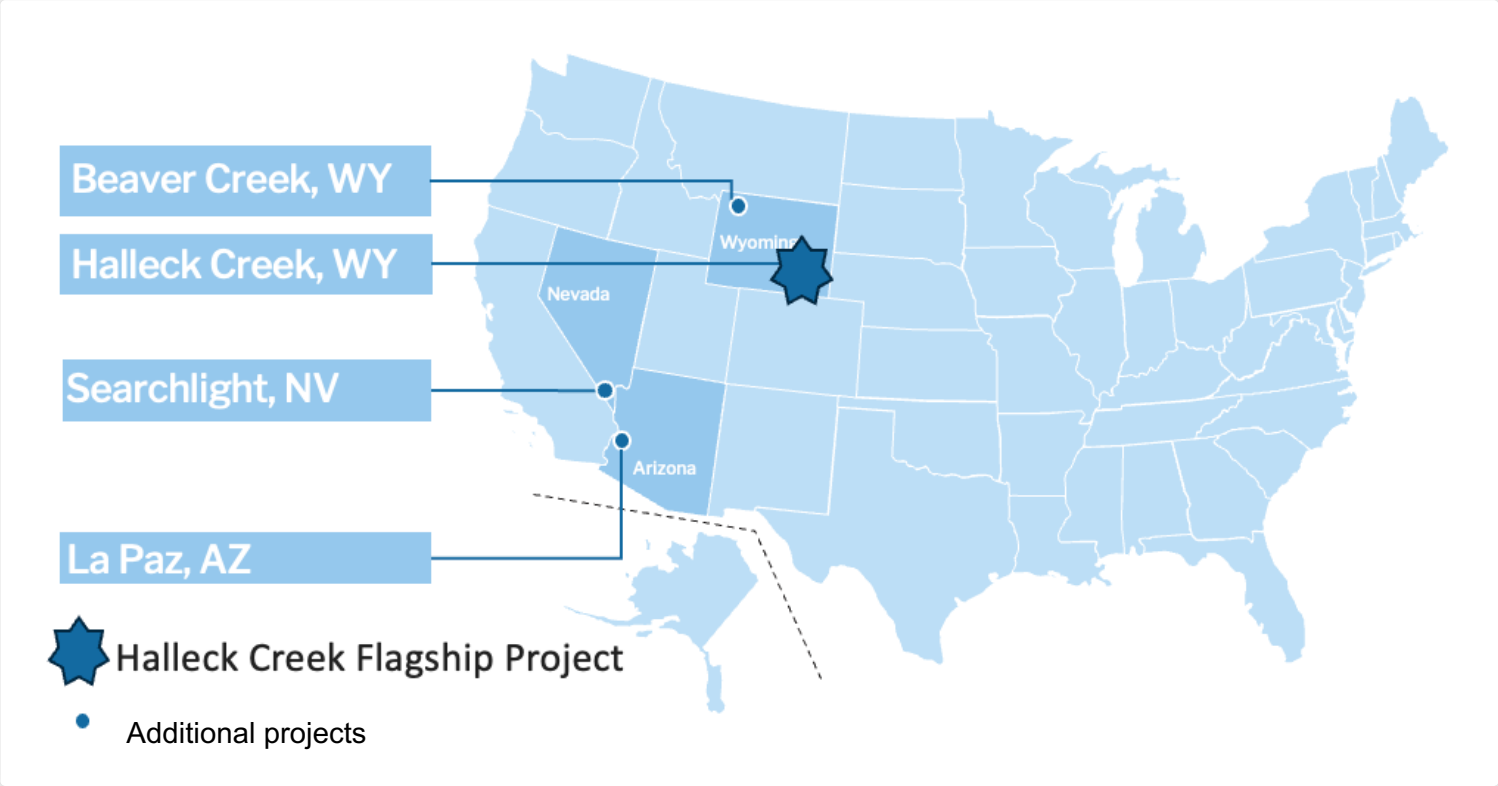
- Largest ASX-listed portfolio of strategic rare earth element assets in the United States.
- Flagship Halleck Creek Project (100% owned) has potential to be largest rare earths deposit in the U.S.
- Projects across southwest U.S. in favorable mining jurisdictions together covering 17,400 acres.
- February 2024 JORC Resource is 2.34 billion tonnes
- 1.42 billion tonnes of measured and indicated resources were estimated at a grade of 3,296 ppm TREO using a 1,000ppm TREO cut-off



Corporate Snapshot

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Share Price (market close 7/02/2024)	$0.135
Shares Outstanding	446.4 million
Market Cap (7/02/2024)	$60 million
Cash Position (31/12/23)	$6.3 million
Invested Financial Assets (31/12/2023)[1]	$5.2 million

(in AUD, except shares)

Donald Swartz
Chief Executive Officer

Jose Rico
Chief Financial Officer

Dwight Kinnes
Chief Technical Officer

Joe Evers
General Counsel

Wayne Kernaghan
Company Secretary

1. Represents investments in Cobalt Blue and Godolphin, inclusive of promissory notes receivable.

Geologic Characteristics Offer Best of Both Worlds

Deposit Comparison	Halleck Creek	Conventional Hard Rock	Ionic Clay
Location	Tier 1	Tier 1	Sovereign Risk
Grade	4-5 % TREO[1]	~6% TREO	0.07 %
Low Penalty Elements (U / Th)[2]	✓	✗	✓
Processing	Tank Leaching	Acid Bake / Cracking	In-Situ Leaching
ESG Positive Inputs	✓	✗	✗
Reduced Capex and Opex	✓	✗	✓
Scalable / Homogenous Deposit[3]	✓	✗	✗

1. Following low-cost extraction and beneficiation..
2. Less than 500ppm confirmed prior to beneficiation. Test work/analysis is in process post beneficiation
3. 2.34 Bt JORC resource, with only 25% of project explored.

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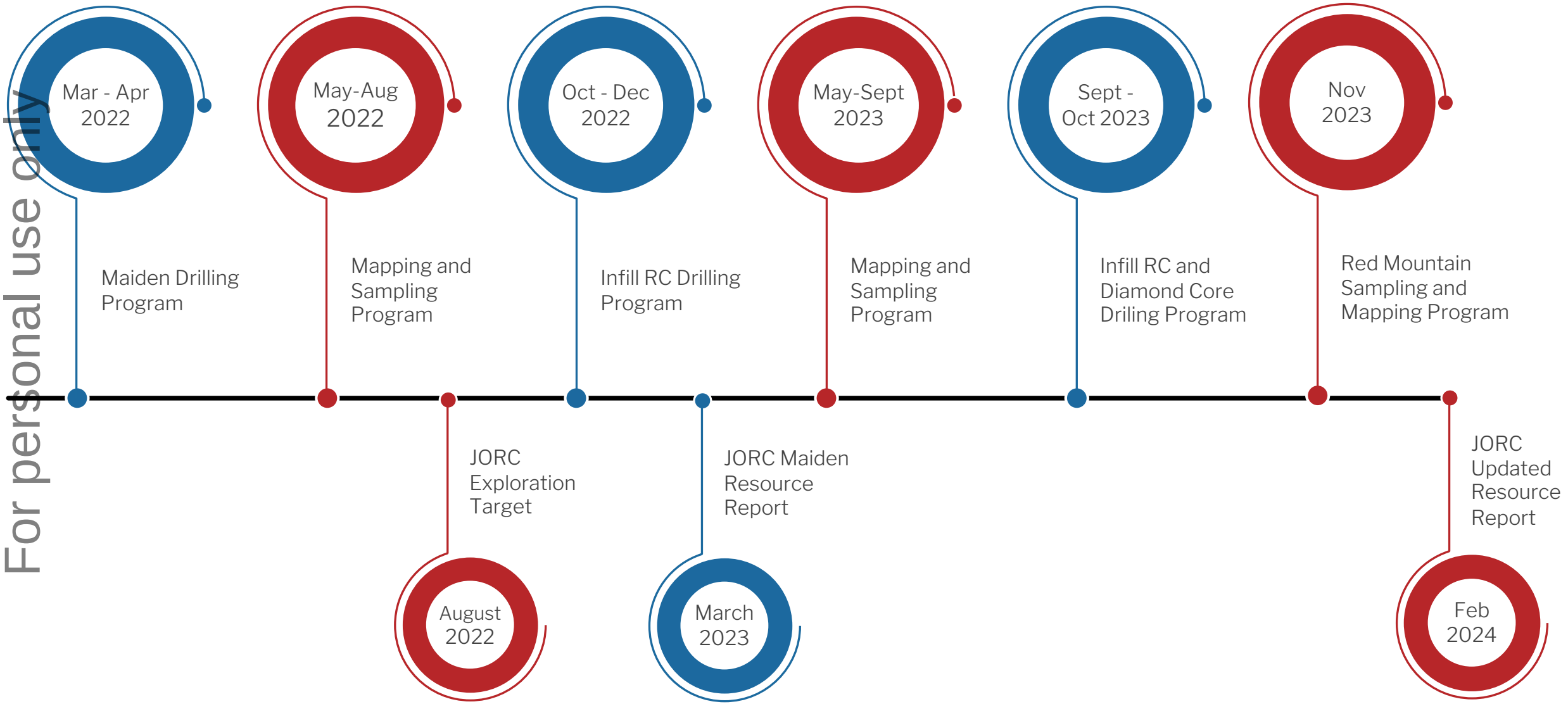
Halleck Creek – Progress to date



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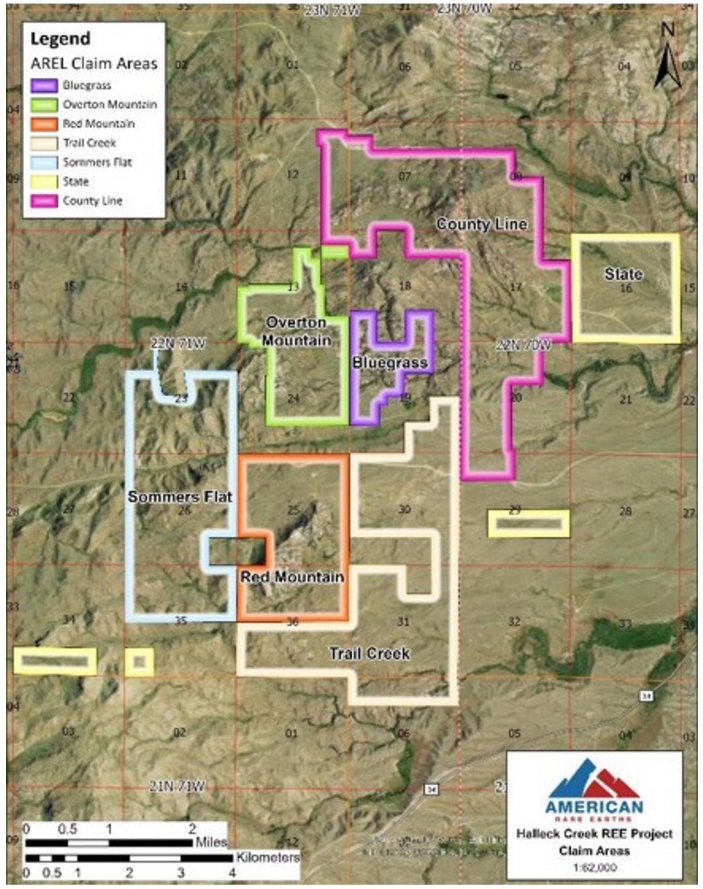
Halleck Creek Project Overview (100% owned)

Potential to be the largest rare earth Deposit in the U.S.

- February 2024 JORC Resource is 2.34 billion tonnes
- 1.42 billion tonnes of measured and indicated resources were estimated at a grade of 3,296 ppm TREO using a 1,000ppm TREO cut-off
- Economic and technical evaluation supports cut-off grade at 1,000ppm TREO based on the net-smelter return
- Successfully preconcentrated TREO at a 12:1 upgrade ratio, representing a ~200% increase from existing flowsheet design using low cost, conventional Dense Medium Separation
- Deposit remains open at depth and along strike
- In-Situ Resources of 419 million tonnes with a TREO grade of 3,349 ppm exists within ARR controlled Wyoming state mineral leases.
- Close to infrastructure and a highly skilled workforce.
- Potential for remarkable scalability, with 75% of mineralised zones yet to be drilled and deposit remaining open at depth.
- Deposit is from surface with consistent grades throughout making it ideal for large scale, low-cost open pit mining.
- Breakthrough metallurgy and mineralogy results reduce capital and operating costs opening the path to early production.
- Environmentally and socially responsible with low penalty elements.



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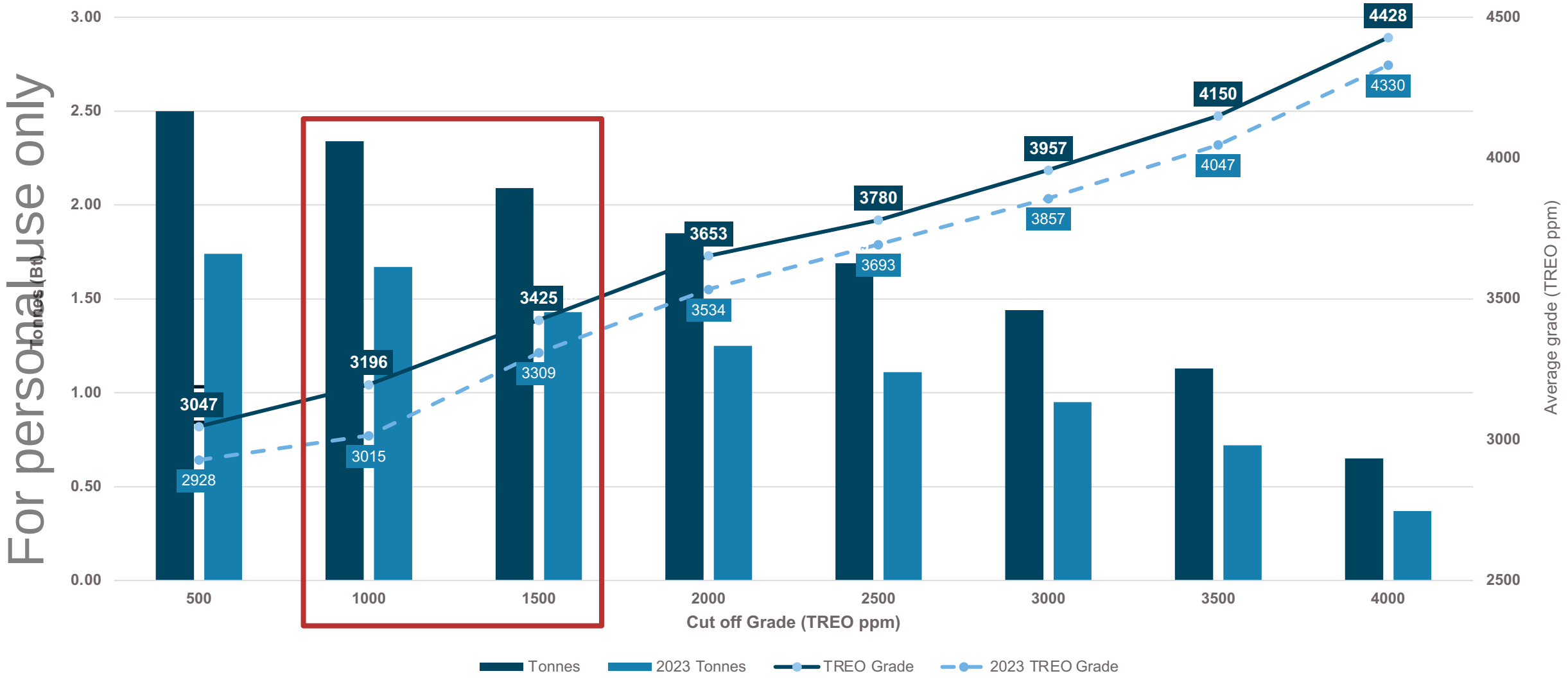
2023 vs 2024 Tonnages and Grades



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Rare Earth Distribution

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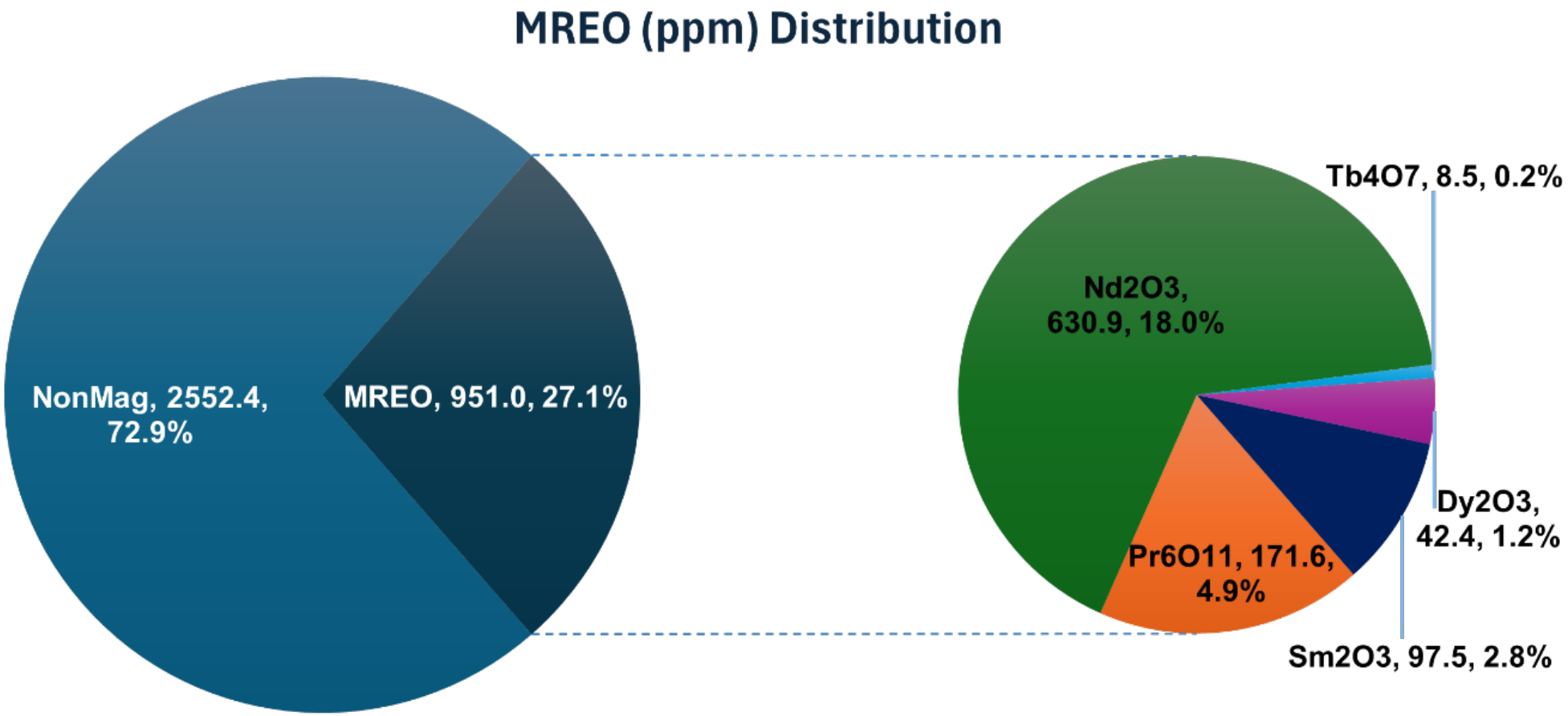

Based on all drilling data to date

Breakthrough Metallurgical Results

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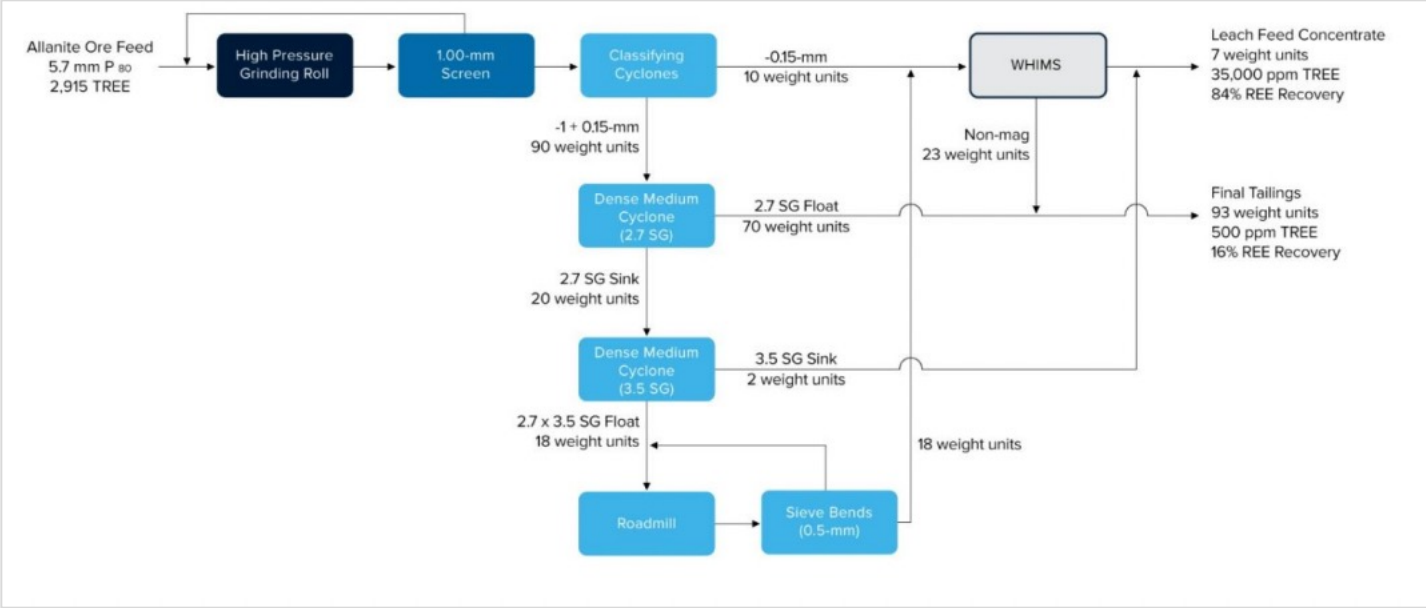
- Halleck Creek ore has been successfully preconcentrated to 3.5% TREO at a 12:1 upgrade ratio, representing a ~200% increase from existing flowsheet design using lowcost, conventional Dense Medium Separation ("DMS").
- Preconcentrating reduces Wet High Intensity Magnetic Separator ("WHIMS") needs by 70% from existing design, significantly reducing capital and operating expenditures.
- The feed mass leading into direct leaching was reduced to 7% from 16%, a 56% reduction of material reporting to leach circuits, providing another significant reduction in operating costs.
- The project has been selected to advance to the next phase of study and the company is engaged in discussions around funding and next steps.

The proposed flowsheet modifications emphasising DMS work for concentrating REE's at Halleck Creek is shown below:



1000 ppm Cutoff

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Net-smelter return (NSR) shows an economic cut-off grade of 1000 ppm TREO

- Cut-off grade = expectation of economic extraction at that grade
- Based on recovery of five primary expected products: **Dy, Tb, Nd, Pr, and La**"

1000 ppm TREO cut-off grade < **3195 ppm TREO average grade** = **low-cost mining!**

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Halleck Creek Potential Resource Extent

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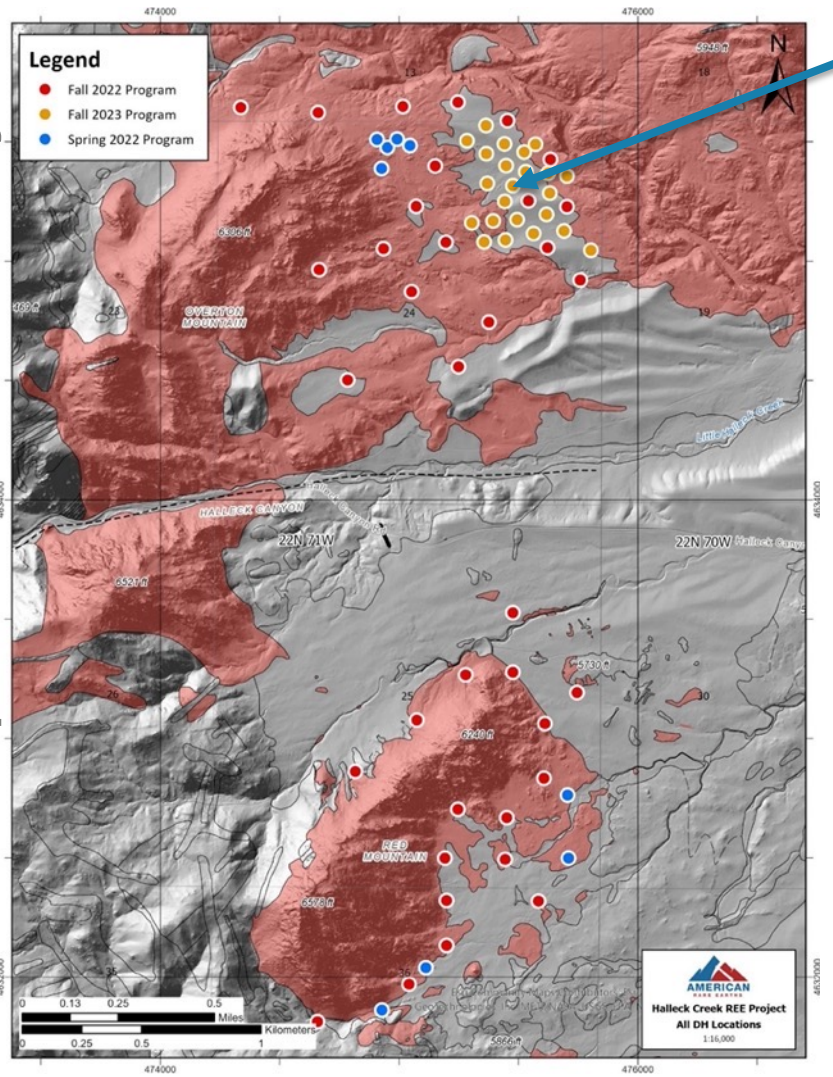
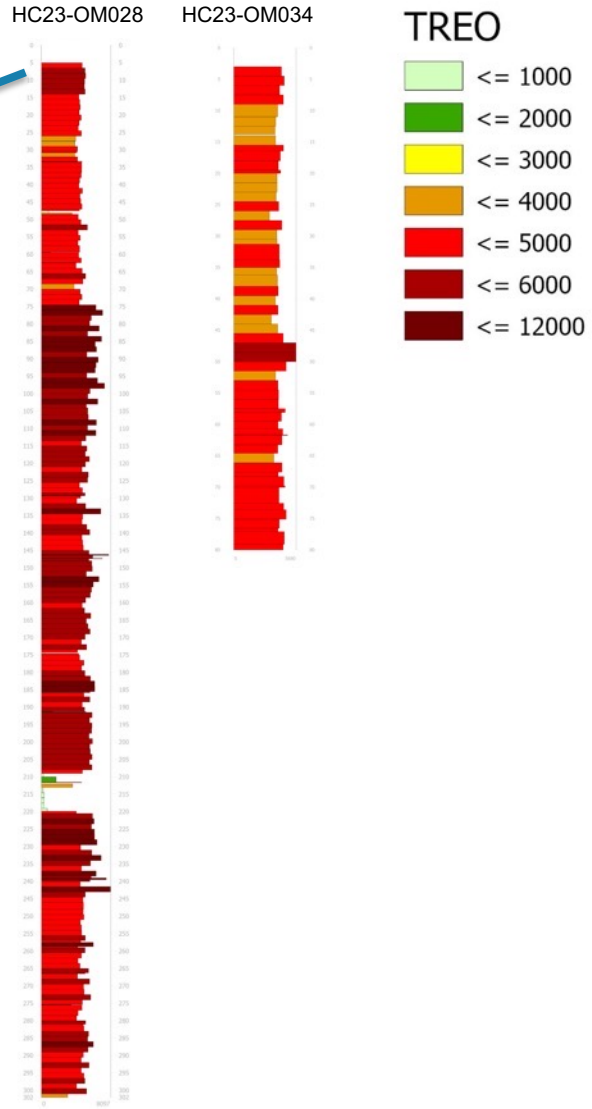
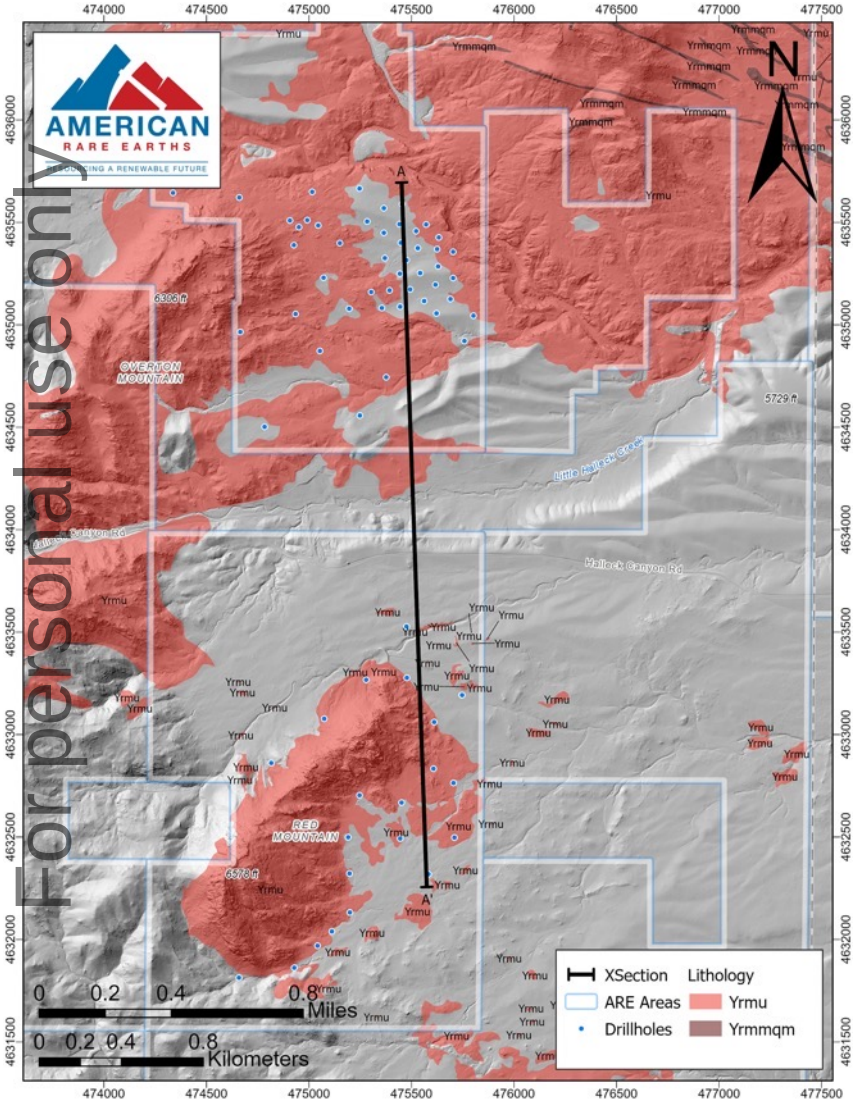


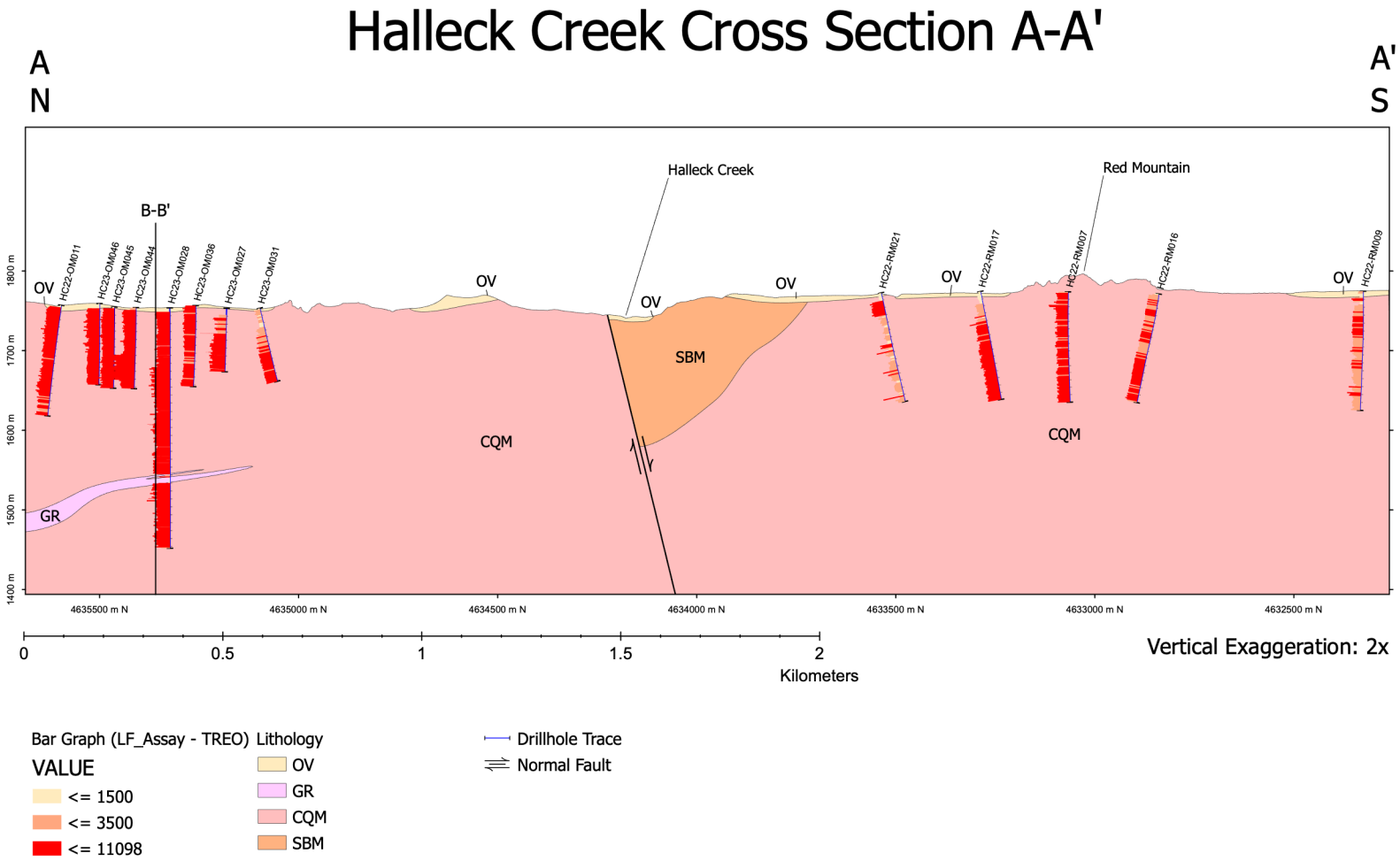


Deepest hole, HC23-OM028

- 302 m
- Average 5088 ppm TREO

Cross Sections





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Halleck Creek drill holes and model extent

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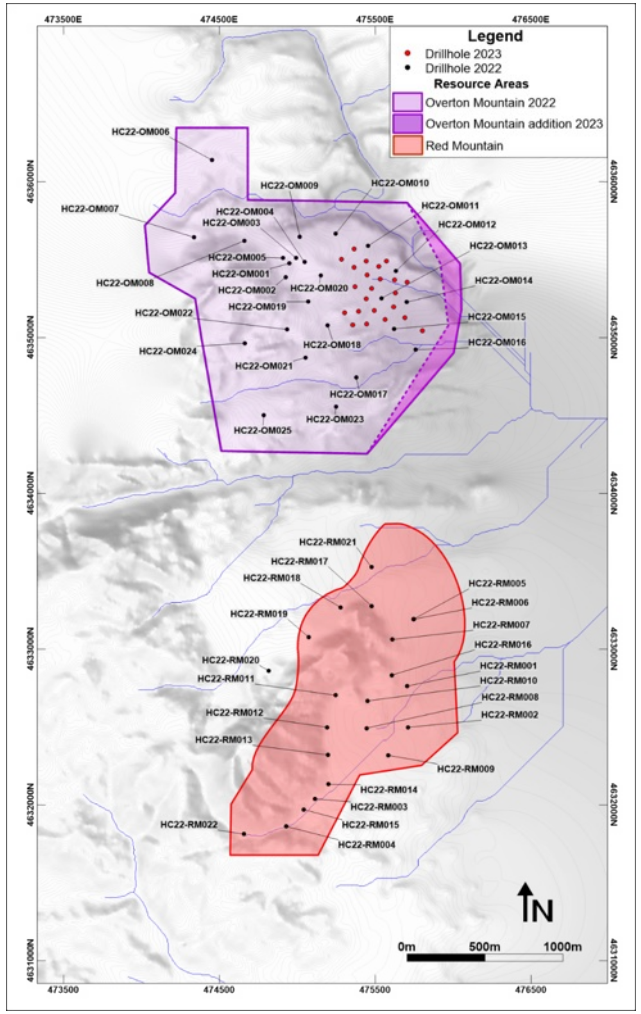
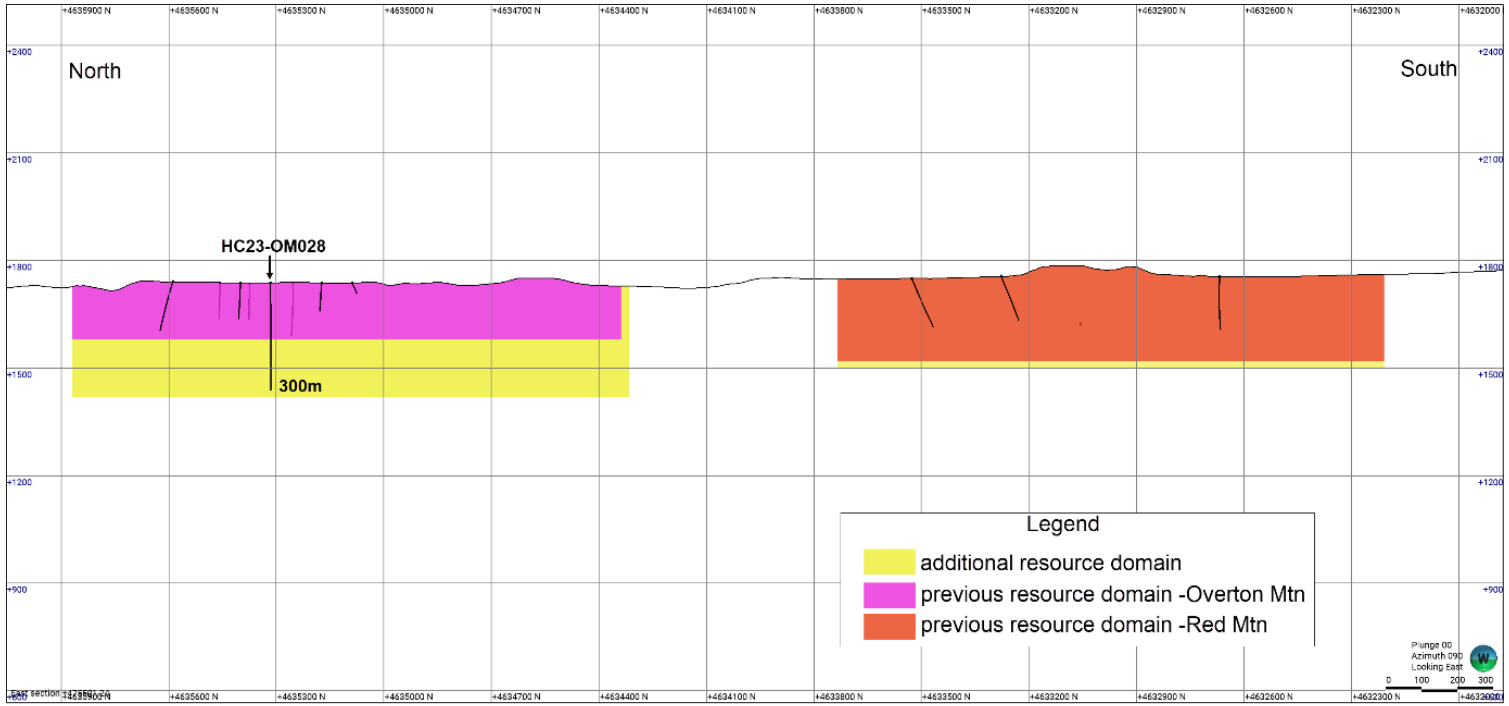
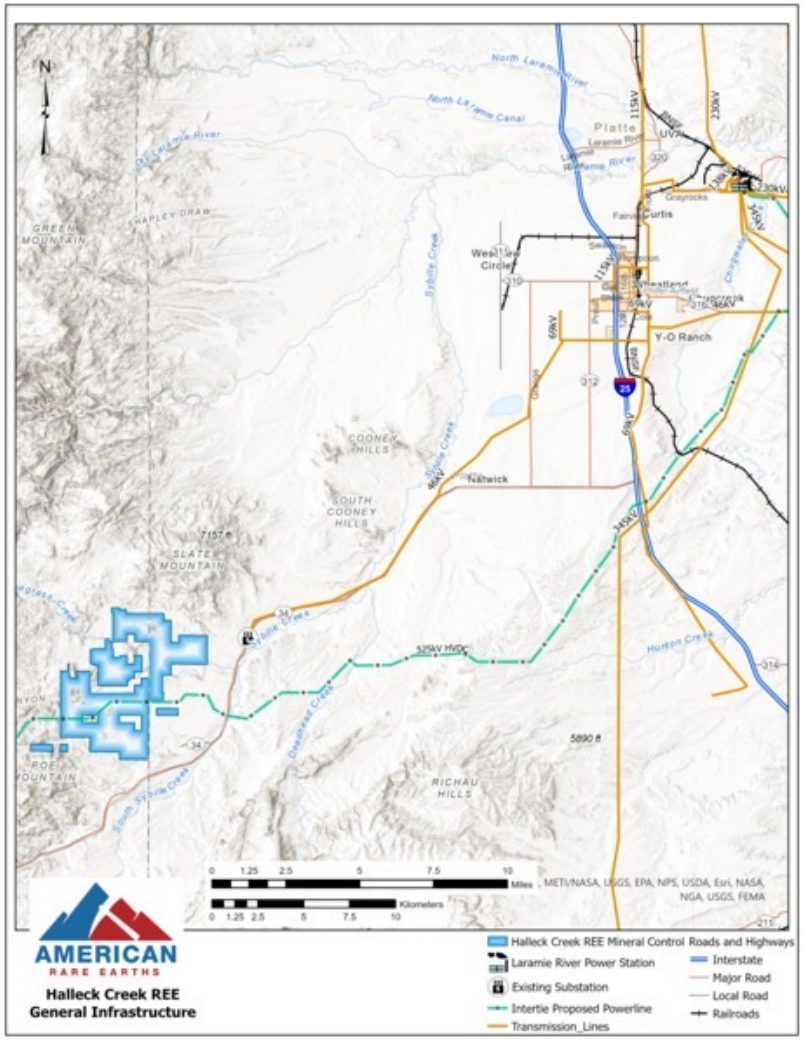


- Only 25% claims have been drilled
- Open along strike and at depth



Infrastructure

- Close to infrastructure, a highly skilled workforce and the University of Wyoming.
- Located in the Central Laramie Mountains, between Laramie and Wheatland.
- Interstate and railroad access via existing state roads.
- Burlington Northern Sante Fe mainline railroad runs through Wheatland.
- Union Pacific railroad runs through Laramie.



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Halleck Creek Development Strategy

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Three-phased parallel path to permitting

Phase 1:

- Finalise scoping study Q1 2024.
- Pursuing test mine authorisation from the State of Wyoming **(Timeframe less than 1 year).**
- Test mine and piloting.
- Low-cost path to de-risking project.
- Flowsheet provided in Appendix.

Phase 2:

- Pursue full state permit for expanded area **(Timeframe 1-3 years).**
- Scaled operations and processing across state and private land.

Phase 3:

- Modular processing design to mitigate forecasted US supply deficit (Timeframe TBD based on project plan).

Expediting permitting, development by pursuing a parallel path to permitting

Investment Overview

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- Domestic sourcing of magnet metals have strategic importance for U.S.
- Forecasted deficit for magnet metals.
- Flagship deposit test results indicate:
  - Low-cost, conventional processing
- Scalable development within homogenous rare earth mineralisation
- Expedited permitting pathway
- Low penalty elements
- Strong, experienced management and board
- Established industry partnerships

American Rare Earths is in the right place, at the right time, with the right commodity

Appendix

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Strong Partners

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WWC ENGINEERING | wsp | wood. | SGS | FTE | ALS | NAGROM | Stantec

Tufts UNIVERSITY | COLUMBIA UNIVERSITY IN THE CITY OF NEW YORK | Lawrence Livermore National Laboratory | PennState

AMES LABORATORY U.S. DEPARTMENT OF ENERGY 1947 75 2022 | UNIVERSITY OF WYOMING

arpa·e PROJECT

U.S. Department of Energy

EMBER

Domestic REE Sources | Bioprocesses to Bind REE | Purified REEs

U.S. Department of Defense Advanced Research Projects Agency's EMBER program

CMI Critical Materials INSTITUTE AN ENERGY INNOVATION HUB

U.S. Department of Energy Critical Materials Institute (CMI)

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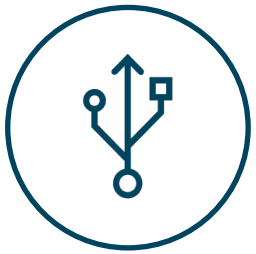
About Rare Earths

Of the 17 rare earth elements, we are focused on primary magnet metals (neodymium (Nd) and praseodymium (Pr)), which are both present at our flagship project, Halleck Creek.

Nd **Pr**

These elements are essential to:

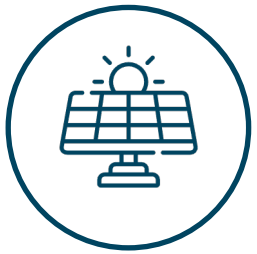


Advanced Electronics

Wind Turbines

Electric Vehicles

Electric Aviation



Solar Panels

Weaponry/ National Defense

Nd and Pr are critical to national security, the economy, and the environment

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Critical to Global Supply Chains

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Short Term 2020-2025

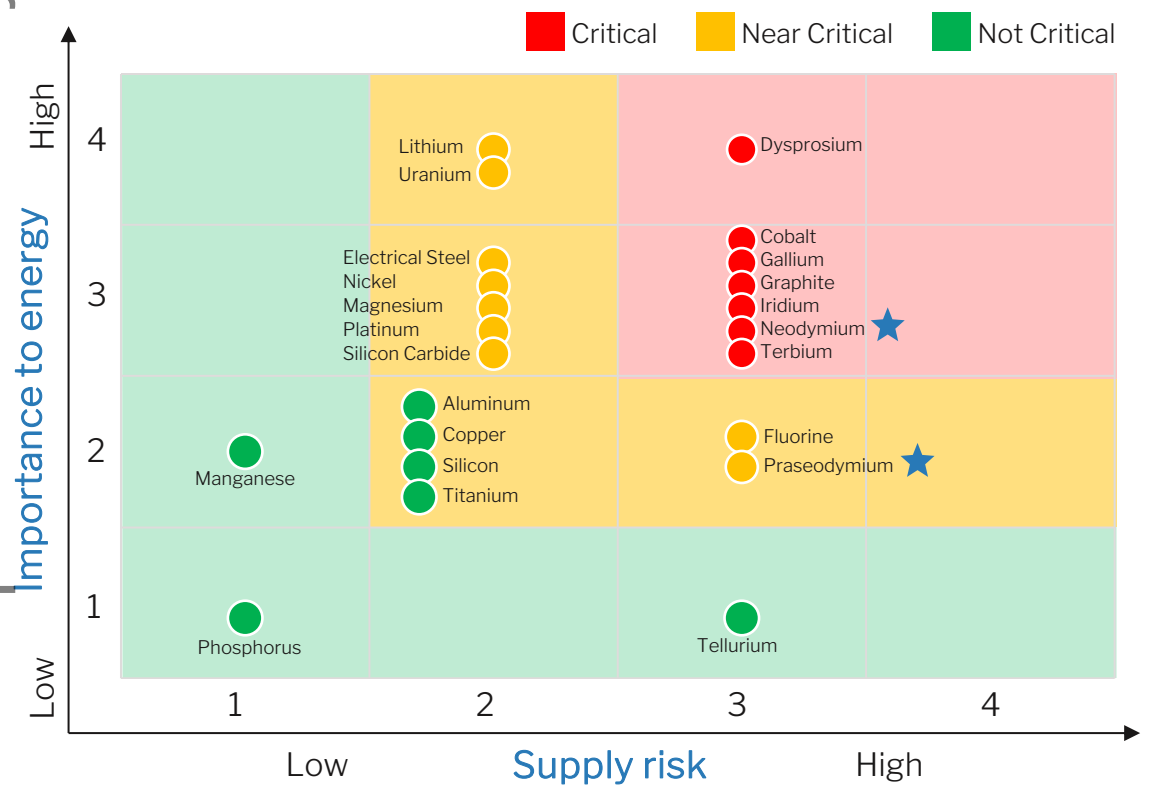

Figure ES.1. Short-term (2020–2025) criticality matrix

Source: U.S. Department of Energy, Critical Materials Assessment 2023

Medium Term 2025-2035

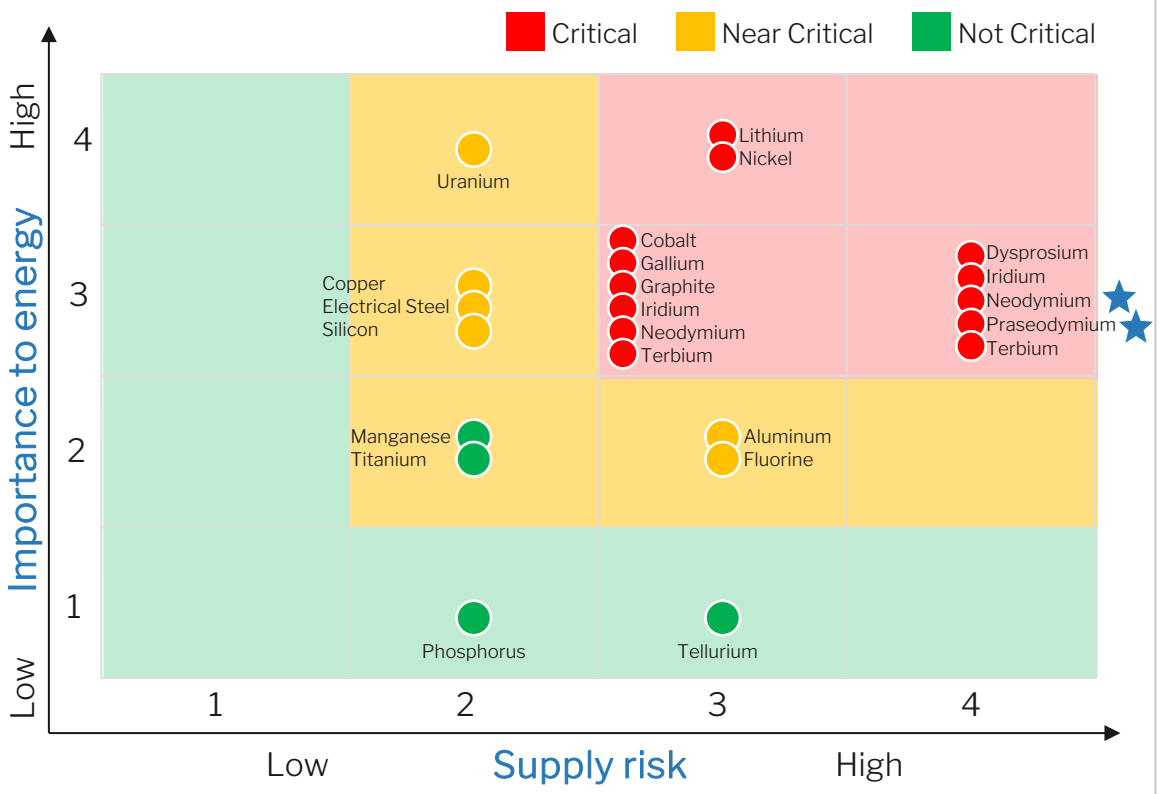

Figure ES.2. Medium-term (2025–2035) criticality matrix

Forecasted Deficit in Magnet Metals NdPr

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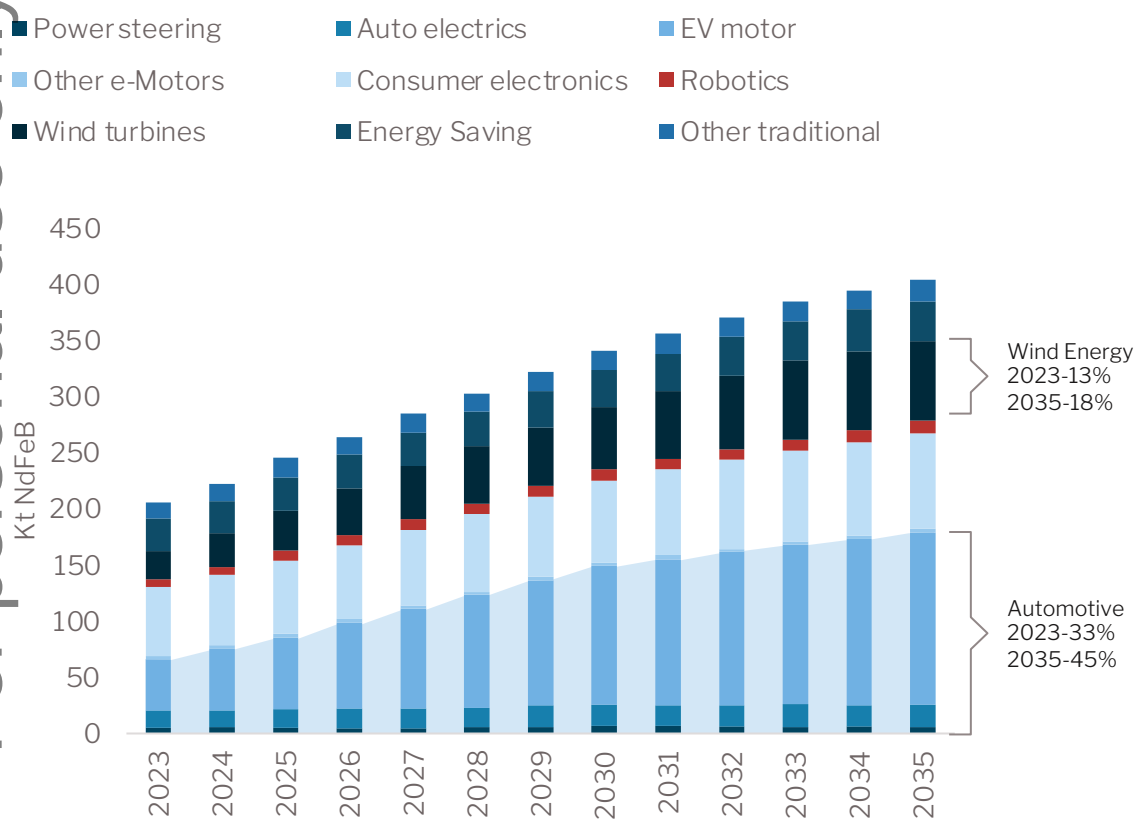
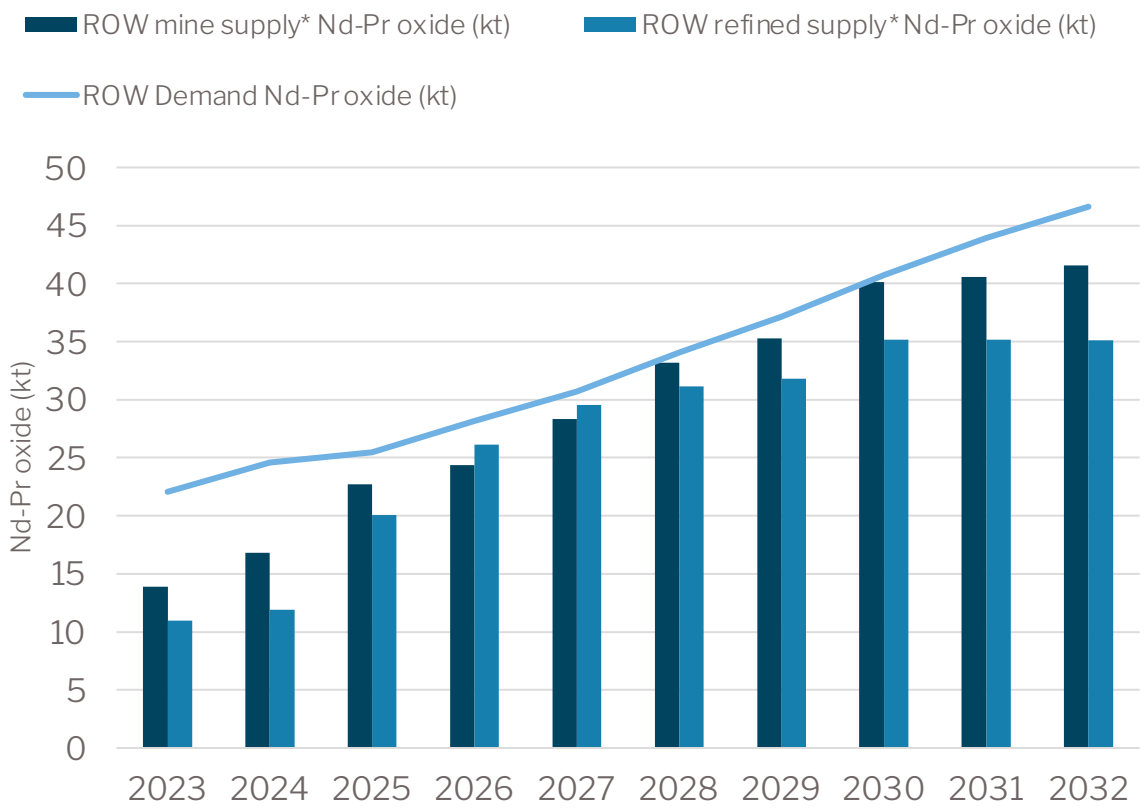
NdFeB demand by end-use application



ROW* Nd-Pr oxide supply and demand (base case)



Non-Chinese capacity is insufficient to meet increasing demand across end-use applications

Credit: Project Blue presentation "Does a detachment from the Chinese rare earth market threaten the global energy transition?" 19 Oct, 2023.